

IN THE CLAIMS

1. (Currently Amended): A process of removing crystallization inhibitors from a solution comprising one or more reducing monosaccharide sugars and/or corresponding sugar alcohols thereof, ~~characterized in that~~ comprising subjecting said solution ~~is subjected~~ to one or more purification steps selected from nanofiltration and optionally hydrolysis and chromatography, whereby said reducing monosaccharide sugar and/or corresponding sugar alcohol thereof is recovered in the nanofiltration permeate and said crystallization inhibitors are recovered in the nanofiltration retentate.

2. (Currently Amended): A process as claimed in claim 1, ~~characterized in that~~ wherein said reducing sugar is xylose.

3. (Currently Amended): A process as claimed in claim 1, ~~characterized in that~~ wherein said reducing sugar is fructose.

4. (Currently Amended): A process as claimed in ~~any one of~~ claims 1 to 3, ~~characterized in that~~ wherein said crystallization inhibitor is selected from compounds which have a larger molar mass than said reducing sugar or the corresponding sugar alcohol thereof.

5. (Currently Amended): A process as claimed in claim 4, ~~characterized in that~~ wherein said crystallization inhibitor is selected from compounds which in their molecule include at least one monosaccharide or corresponding unit more than said reducing sugar or the corresponding sugar alcohol thereof.

6. (Currently Amended): A process as claimed in claim 4 ~~or 5, characterized in that~~ wherein said crystallization inhibitor is selected from dimeric and/or oligomeric compounds.

7. (Currently Amended): A process as claimed in claim 6, ~~characterized in that~~ wherein said dimeric and/or oligomeric compounds are selected from dimeric and/or oligomeric forms of said reducing sugar and/or the corresponding sugar alcohol thereof.

8. (Currently Amended): A process as claimed in claim 2, ~~characterized in that~~ wherein said crystallization inhibitor is selected from xylobiose, xylotriose and xylo-oligosaccharides.

9. (Currently Amended): A process as claimed in claim 3, ~~characterized in that~~ wherein said crystallization inhibitor is selected from difructose anhydrides, fructose dianhydrides, diheterolevosanes and diheterolevulosans.

10. (Currently Amended): A process as claimed in ~~any one of claims 1 to 9,~~ ~~characterized in that~~ wherein the nanofiltration is carried out at a pressure of 10 to 50 bar, ~~preferably 15 to 40 bar.~~

11. (Currently Amended): A process as claimed in ~~any one of claims 1 to 9, character-~~ ~~ized in that~~ wherein the nanofiltration is carried out at a temperature of 5 to 95 °C, ~~preferably 30 to 60 °C.~~

12. (Currently Amended): A process as claimed in ~~any one of claims 1 to 11, e-h-a-r-a-e-t~~
~~e-r-i-z-e-d-i-n-t-h-a-t~~ wherein the nanofiltration is carried out with a flux of 5 to 100
liters/m²h.

13. (Currently Amended): A process as claimed in ~~any one of claims 1 to 9, e-h-a-r-a-e-t~~
~~e-r-i-z-e-d-i-n-t-h-a-t~~ wherein the nanofiltration is carried out using a nanofiltration
membrane selected from polymeric and inorganic membranes having a cut-off size of
100 to 2500 g/mol.

14. (Currently Amended): A process as claimed in claim 13, ~~e-h-a-r-a-e-t-e-r-i-z-e-d-i-n~~
~~t-h-a-t~~ wherein the cut-off size of the nanofiltration membrane is 150 to 1000 g/mol.

15. (Currently Amended): A process as claimed in claim 14, ~~e-h-a-r-a-e-t-e-r-i-z-e-d-i-n~~
~~t-h-a-t~~ wherein the cut-off size of the nanofiltration membrane is 150 to 500 g/mol.

16. (Currently Amended): A process as claimed in ~~any one of claims 13 to 15, e-h-a-r-a~~
~~e-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein the nanofiltration membrane is selected from ionic
membranes.

17. (Currently Amended): A process as claimed in ~~any one of claims 13 to 16, e-h-a-r-a~~
~~e-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein the nanofiltration membrane is selected from hydrophobic
and hydrophilic membranes.

18. (Currently Amended): A process as claimed in ~~any one of claims 13 to 17, e-h-a-r-a~~
~~e-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein the nanofiltration membrane is selected from cellulose

acetate membranes, polyethersulfone membranes, sulfonated polyether sulphone membranes, polyester membranes, polysulfone membranes, aromatic polyamide membranes, polyvinyl alcohol membranes and polypiperazine membranes and combinations thereof.

19. (Currently Amended): A process as claimed in claim 18, ~~e-h-a-r-a-e-t-e-r-i-z-e-d-i-n~~
~~that~~ wherein the nanofiltration membrane is selected from sulfonated polyether sulfone membranes and polypiperazine membranes.

20. (Currently Amended): A process as claimed in claim 18 ~~or 19~~, ~~e-h-a-r-a-e-t-e-r-i-z-e-d~~
~~in-that~~ wherein the nanofiltration membrane is selected from NF-200, Desal-5 DL, Desal-5 DK, Desal G10 and NTR 7450 membranes.

21. (Currently Amended): A process as claimed in ~~any one of~~ claims 13 ~~to 20~~, ~~e-h-a-r-a-e-t-e-r-i-z-e-d-i-n-that~~ wherein the form of the nanofiltration membrane is selected from sheets, tubes, spiral membranes and hollow fibers.

22. (Currently Amended): A process as claimed in ~~any one of~~ claims 13 ~~to 21~~, ~~e-h-a-r-a-e-t-e-r-i-z-e-d-i-n-that~~ wherein the nanofiltration membrane is selected from high shear type membranes.

23. (Currently Amended): A process as claimed in ~~any one of~~ claims 1 ~~to 22~~, ~~e-h-a-r-a-e-t-e-r-i-z-e-d-i-n-that~~ wherein the nanofiltration process is repeated at least once.

24. (Currently Amended): A process as claimed in claim 1, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein said purification steps further comprise hydrolysis.

25. (Currently Amended): A process as claimed in claim 24, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein said hydrolysis comprises enzymatic hydrolysis.

26. (Currently Amended): A process as claimed in claim 24, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein said hydrolysis comprises acid hydrolysis.

27. (Currently Amended): A process as claimed in claim 1, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein said purification steps further comprise chromatographic separation.

28. (Currently Amended): A process as claimed in claim 27, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein said chromatographic separation is carried out using a column packing material selected from cation exchange resins and anion exchange resins.

29. (Currently Amended): A process as claimed in claim 28, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein said cation exchange resins are selected from strongly acid cation exchange resins and weakly acid cation exchange resins.

30. (Currently Amended): A process as claimed in claim 28 ~~or 29~~, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein said resin is in a monovalent metal form or a divalent metal form.

31. (Currently Amended): A process as claimed in ~~any one of~~ claims 28 to 30, ~~e-h-a-r-a-c-t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein the resin has a styrene skeleton or acrylic skeleton.

32. (Currently Amended): A process as claimed in ~~any one of claims 1 to 31, e-h-a-r-a-e~~
~~t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein said solution comprising one or more reducing sugars and/or
corresponding sugar alcohols thereof is a biomass hydrolysate.

33. (Currently Amended): A process as claimed in ~~any one of claims 1 to 32, e-h-a-r-a-e~~
~~t-e-r-i-z-e-d-i-n-t-h-a-t~~ wherein said solution comprising one or more reducing sugars and/or
corresponding sugar alcohols thereof is a fraction enriched in said reducing sugar and/or
sugar alcohol and obtained from the separation of said reducing sugar and/or sugar
alcohol.

34. (Currently Amended): A process as claimed in claim 33, ~~e-h-a-r-a-e-t-e-r-i-z-e-d-i-n~~
~~t-h-a-t~~ wherein said solution comprising one or more reducing sugars and/or sugar
alcohols thereof is obtained from the chromatographic separation of said reducing sugar
and/or sugar alcohol.

35. (Currently Amended): A process as claimed in ~~any one claims 1 to 31, e-h-a-r-a-e-t-e~~
~~r-i-z-e-d-i-n-t-h-a-t~~ wherein said solution comprising one or more reducing sugars and/or
corresponding sugar alcohols thereof is a mother liquor obtained from the crystallization
of said reducing sugar and/or sugar alcohol.

36. (Currently Amended): A process as claimed in claim 2, ~~e-h-a-r-a-e-t-e-r-i-z-e-d-i-n-t-h-a-t~~
wherein said solution comprising xylose is a spent liquor obtained from a pulping
process.

37. (Currently Amended): A process as claimed in claim 2, ~~characterized in that~~ wherein said solution comprising xylose is a xylose fraction obtained from the chromatographic separation of xylose from a spent liquor obtained from a pulping process.

38. (Currently Amended): A process as claimed in claim 2, ~~characterized in that~~ wherein said solution comprising xylose is a mother liquor obtained from the crystallization of xylose.

39. (Currently Amended): A process as claimed in claim 3, ~~characterized in that~~ wherein said solution comprising fructose is a fructose solution obtained from the hydrolysis of starch.

40. (Currently Amended): A process as claimed in claim 3, ~~characterized in that~~ wherein said solution comprising fructose is a fructose solution obtained from hydrolyzed and isomerized saccharose.

41. (Currently Amended): A process as claimed in claim 3, ~~characterized in that~~ wherein said solution comprising fructose is a fructose fraction obtained from the separation of fructose from a fructose solution obtained from the hydrolysis of starch and/or isomerisation of saccharose.

42. (Currently Amended): A process as claimed in claim 41, ~~characterized in that~~ wherein said solution comprising fructose is a fructose fraction obtained from the

chromatographic separation of fructose from a solution obtained from the hydrolysis of starch and/or isomerisation of saccharose.

43. (Currently Amended): A process as claimed in claim 3, ~~characterized in that~~ wherein said solution comprising fructose is a mother liquor obtained from the crystallization of fructose.

44. (New): A process as claimed in claim 10, wherein the nanofiltration is carried out at a pressure of 15 to 40 bar.

45. (New): A process as claimed in claim 11, wherein the nanofiltration is carried out at a temperature of 30 to 60°C.